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FIG. 116. *Coryphantha Hesteri* was described as new species by Mrs. John D. Wright in Journal IV, pg. 273. (See Spine Chats, this issue.)



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OUR 1949 CONVENTION AND THE WEST COAST

By HOWARD E. GATES

Our Eastern members will find that our 1949 Convention will combine nicely with a trip to the West Coast. Phoenix is well connected with the Southern California cities by excellent highway, air and rail routes. Travel by highway in this area is much faster than it is in most parts of the country. Auto travelers today can cover in hours, journeys that took the forty niners of gold rush days, weeks of hard travel.

One good highway leads from Southwestern Arizona through Yuma to Imperial Valley, one of the country's greatest salad bowl areas. Between Yuma and the Valley, this highway crosses the All American Canal, a veritable river that carries the Colorado River water necessary to transform Imperial Valley from a desert waste to an agricultural empire. In the Valley, the highway forks with one branch going over the coastal mountain range to San Diego. The other branch goes north and westward past Salton Sea, below sea level, on its way to Los Angeles. Another highway is routed through central western Arizona via Wickenburg and Blythe to Indio, which is the date growing center of the western world, and then on to Los Angeles. An alternate route from Indio passes through Palm Springs.

There is a continuous and interesting flora in all the desert country between Phoenix and California's coastal range. To see this flora at its best, it is necessary to take short side trips into the canyons opening out of the numerous ranges of small but rugged desert mountains. Between San Diego and the Mexican Border, a few minutes search in the thinly brushed hills, will reveal an amazing number of cacti and succulents growing within sight of the ocean.

Either Los Angeles or San Diego may easily be reached in a day's driving of eight to ten hours. There is no need to dwell upon the interesting features of Southern California as the Chambers of Commerce have done a better job than we can do. However, all convention visitors to California should not miss the Huntington Botanical Gardens at San Marino containing a famous collection of mature cactus and succulent plants. California's cactus and succulent nurseries as well as many private collections will be open to convention visitors.

A second day's travel will bring one to the Yosemite Valley and the redwood forests of the Sierra Nevada or up the great central valley to Sacramento. An alternate day's travel would be up the coast route via Santa Barbara to San Francisco and its great bridges.

A third day's travel would take one through the great redwood empire to Eureka and on into the

evergreen playground of western Oregon or alternately through the northern portion of California's central valley past Mt. Shasta's base to Portland in Oregon.

Those who do not have time nor inclination for a trip up the coast will find another excellent highway leading northwestward from Southern California. This route takes one via Las Vegas in Nevada to Salt Lake City from which numerous highways lead over the Rocky Mountains. Excellent short side trips are to Lake Mead which is backed up by Hoover Dam, Zion Canyon, Bryce Canyon and the north bank of the Grand Canyon. The journey from Los Angeles to Salt Lake City should be figured at a day and a half.

Auto courts are the favorite stopping places for travelers in the Southwest. Many of them equal fine hotels for the quality of their accommodations and there are no parking troubles.

If you have not already done it, mark down in red July 2 to 5 as Forty Nine Convention days in Phoenix. We hope local clubs have already started a fund to send some one who might not otherwise be able to go.

Your Convention Chairman is sticking his neck out on the block by offering to try to answer questions of any nature except domestic difficulties, that may be asked. In answer to a question already raised, he will say that there is an excellent cafe on the grounds of the auto court that is expected to be used as lodging headquarters, so between this place and the meals that will be served in the Convention Auditorium in the Desert Botanical Garden, no one need go hungry. Nor dirty either as there is a swimming pool on the court grounds. Transportation will be arranged from the lodgings to the convention sessions for those who do not have their own transportation.

HOWARD E. GATES, Corona, Calif.

DESERT GARDEN IN CANADA

"Your Garden and Home" magazine, published at 204 Richmond Street W., Toronto, Canada,* contained a feature article in its October, 1948, issue by our Society member Dr. L. E. Blanchard of Buffalo, N. Y. "Desert Gardens" was well illustrated with a full page cover in natural color of his summer succulent garden at Crystal Beach, Ontario. The color work was some of the finest we have seen. Dr. Blanchard explains the meaning of the terms, cacti and succulents, their characteristics, and culture. It is a great satisfaction to see a popular article well written as to terminology, facts, and plant names. He brings out the fact that the highly pigmentation of the other succulents prevents chlorouhyl destruction in prolonged brilliant sunlight.

*15c per copy in Canada, \$1.50 per year.

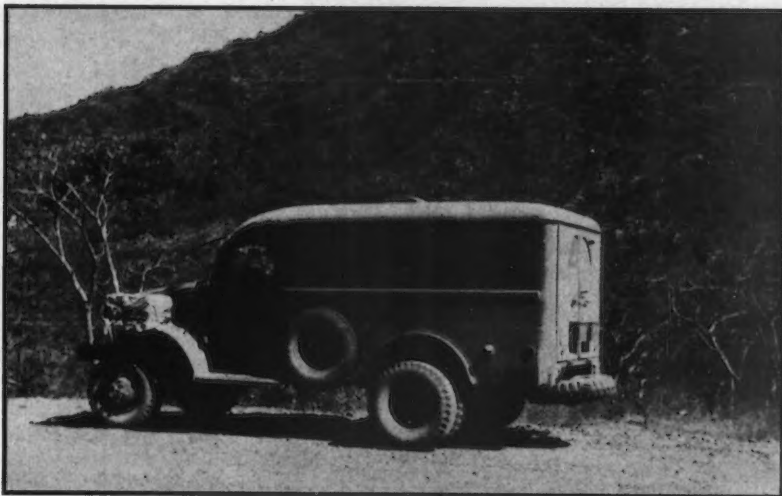


FIG. 117. The expedition truck enroute.

A NATURALIST'S DIARY ON THE MEXICAN WEST COAST

By E. YALE DAWSON

"Fly overnight to Mexico, glamorous city of romance and fiesta. Seven beautiful days in the oldest and most entrancing city of America. Special fall tour. Splendid accommodations."

This was the trip we did *not* take. The superficialities and misconceptions of the tourist folders did not entice us. We were going the naturalist way.

For the naturalist, the marvels of Mexico's varied lands and seas are almost a world in themselves. The mountains and plains, the deserts and jungles are all there to excite his spirit and goad his inquiry. His appetite is never jaded. Always there are new horizons to explore.

For me, Mexico made its first impression on a young and receptive mind, and the urge to travel "los caminos mexicanos" has long been nurtured and restimulated in me. Aside from the call of the land itself has been added the insistence of recurrent symptoms of that habit-forming occupation: cactus collecting. I had indulged long, frequently and immoderately. When the year 1946 came, I began again to feel the hunger.

At the laboratory and at home the month of September was one of steady, careful preparation. In accordance with a botanical field-research grant from the Guggenheim Foundation of New York, my plans called for five months

of botanical exploration along the west coast of Mexico. The major objective was a field survey of the marine algae of the Pacific Mexican area, but these investigations could be carried out only during the low tide periods twice a month. There would be time for other natural history projects, and in keeping with my own interests as well as those of the Allan Hancock Foundation, I chose some supplementary activities for the expedition. These were to include the collecting of insects, principally butterflies and moths, of reptiles, mainly lizards, of living orchids for cultivation, and of cacti for herbarium preservation. For the cacti I made preparations for a pictorial record of the more interesting observations, particularly on the mainland of southern Mexico.

There wasn't to be a crowd along on this trip; just my wife and I in our big Dodge army ambulance truck. We had chosen the large-bodied truck for its rugged power and for its spacious interior. The mountainous pile of supplies required the latter. A mid-deck sleeping platform was built in above the main floor space and both rectangular areas made to accommodate a large number of dust-tight, five-gallon tin cans in wooden boxes, these to contain most of our food and gear, and to be used later for spare gasoline, for pickling, preserving and shipping specimens. To name all the supplies

and pieces of equipment that found themselves riding with us would require an indexed directory. The load grew to a gross of 7500 pounds.

On October 2, 1946, we were at last ready, and the following day we took last leave of our contacts north of the border to roll south into Baja California.

Sunday, October 6,—near San Agustin

Maxine has taken to bed under the stars and at seven o'clock we feel as if a very long day lies behind us. Thinking back even to yesterday seems very distant, for we have passed many a rock pile and pulled through many a rut between Ensenada and this mountainous desert. From Ensenada we rolled easily over well-graded road to Rio San Telmo, but at that point construction was in progress and the road deteriorated to the well-worn pair of tracks so typical of this country. We had the duals on and found it too rough in the narrow tracks, the edges of which would carry the wheels high on the outside and tear the casings. Today, even with the single wheels we sometimes ride up on the wheel-nuts, so narrow are the ruts.

We camped last night near Colonia Guerrero in the Santo Domingo river valley just downstream from Hamilton's Ranch. It is a new agricultural settlement so rapidly expanding that one of the farsighted ones already is supervising the construction of a theater. Gas is only 28c,—12c less than at Hamilton's Ranch where the emphasis seems to be on helping the American tourist free himself from his money.

As it has always been in the past, I found it a thrill to watch for the first *Bergerocactus* of the trip, then the first *Machaerocereus*, then *Myrtillocactus*. The fine highway beyond Santo Tomas brings the *Myrtillocactus* country within easy access of Californians. *Dudleya* fans, too, should find this coastal country exciting, for these plants are exceptionally numerous and varied throughout the region.

Idrias have been brought into Colonia Guerrero for ornamental planting and a little beyond San Quintin we saw the first native ones in the distance as well as a few emaciated *Pachycereus* plants on the margins of their territory. The cactus flora doesn't get "good" until the tracks turn eastward toward the interior and the granite mesas of Cataviña. Along the Rosario river a few miles inland, the *Lophocerei* begin to show their hairy columns. Then the idrias begin to stalk the hillsides and the cardones (*Pachycereus*) to sentinel the heights. By the time we had toiled over San Jorge grade above Aguajito we were in the cactus country for good, and I

think now how no less beautiful and gratifying the view of that land has been today than it was 13 years ago when I first saw it.

We have spotted cristates of several kinds: *Machaerocereus*, *Pachycereus*, *Ferocactus*, *Bergerocactus* and even an *Idria*. Up here where the cacti are so exceptionally abundant one marvels at the opportunities for field study of these plants. Interesting problems are apparent at every turn.

Rain has been abundant and has washed out the roads very badly. Near Rosario we had to pull in second and even first gear a part of the time over new ruts just cut in after the rains. In the Rosario river we used all four wheels a couple of times to get through mud which nearly topped our high running boards. Actually we've come only 63 miles today in about 7 hours of actual driving. The car pulls well, but we had to use all the available power to pull this load up a couple of steep grades south of Aguajito where, from the looks of it now, the red adobe must have turned to tomato soup during the rains. Even the mail from the south has been held up three weeks and Rosario has delivered only northward.

We found no bread or eggs for sale today in Rosario so decided to supplement our stores with some wild game. Quail is now on our breakfast menu. The birds are abundant here where the fresh green vegetation provides such excellent feeding grounds. Mosquitoes also have flourished with the moisture and the current crop is all out after us this evening. Everything is green; the cacti are plump and the idrias all in leaf. The rare *Yucca* skippers (*Megathubus*) were flying so abundantly this afternoon around their *Agave* foodplants that I stopped to net a few. The reptiles kept out of our way today, though, and only one lizard joined our collection.

Last night we were passed three times in the night by produce trucks coming north from Rosario, hauling, in particular, the red peppers which are ripening abundantly in that area. The hills are splashed with red from the millions of drying peppers. Maxine tasted one and found it pleasant until she made the error of chewing up the seed,—Whew!!

Monday, October 7—on the plateau above Laguna Seca Chapalla.

Except for mosquitoes in the river bed we spent a good night bathed by the cool, clean air pouring down from the Sierra San Pedro Martir. We had our breakfast of quail and under a warm sun and a clear sky set out for San Agustin and El Marmol. Within an hour we reached a



FIG. 118. A crested *Pachycereus Pringlei* with *Idria columnaris* on either side.

ranchero at which we encountered two American men, one a stranded aviator who had been forced down with magneto trouble on the El Marmol strip. The other had broken an army ordnance truck rear axle in a sand hole and had pulled into the desert haven with his front-wheel drive. We were duly warned of the dangers of that sand hole and so managed to avoid it. The roads are terribly cut, washed and eroded; frequently there is nothing to follow but the tracks of the last car which has passed through.

Lunch time came as we descended the rim of a beautiful palm canyon near Cataviña, and it looked for a while as though we might find something of interest to collect. No animal life, though, for the butterflies were few and the lizards hardly to be seen. The two I did shoot were insufficiently wounded to prevent them from finding holes for themselves.

Once again the magnificent spectacle of the

Cataviña mesa has become a part of my experience. This area should surely be made a national monument, for nowhere else in Mexico have I ever seen so splendid a display of desert plants in so grand a setting. The mesa is a fantasy of smooth, white sand and of giant granite boulders, the whole beset with the weirdest array of strange succulent plants, the towering giant cacti and "living telegraph poles" dominating the landscape. The gleaming-spined chollas abound; the high-held floral torches of the agaves and yuccas are like beacons over the scene, and all is so still—so still, that the hum of a fly, or the distant zzzz of a cicada, the movement of a lizard on the sand can be heard and recognized.

Years ago I found an *Idria* growing atop one of the great boulders (Fig. 119). The seedling root had found a crevice and had driven through thirty feet of rock to the soil and water beneath. That *Idria* is still there and after 13 years has grown six inches, so persistent is its grasp on life atop that inhospitable rock.

Gasoline has not been the problem I had thought, for gas can be had here mainly because it is rare. Thus, since the supply is so hard to come by, each ranchito has a small supply in a drum, a part of which is for sale,—at a price. We found it at Cataviña and at Santa Inez, and in getting a supply at the former place were assisted by a dozen loitering men, most of whom were stranded travelers waiting for news from the north toward which they had sent comrades for parts or repairs to broken-down trucks. Broken axels and clutches seem to be the rule here. My spare axel and differential may come in handy. Wonder why I didn't think to bring a clutch.

The oil drillers are even taking a try at this desolate country. Before we pulled out a '41 Ford came in with two geologists who are down from Ensenada searching for possible oil-bearing strata. They report that it isn't a very promising area,—no seepages at all, and only a few indications of oil-bearing sediments, but some trial holes are being drilled out on the Viscaino desert.

We left the mesa's palm canyons and drove the grueling grade to the top of the range from which we would descend to Laguna Seca Chappala. The view and the breeze up here were so refreshing that we set up our camp on a smooth, sage-covered slope under a gloriously red, fading sky. Now the breeze is turning cold and it looks like we'd best prepare for a cool morning. We are still sleeping out for the mosquitoes are tolerable and it is too much of a chore to unpack the truck.

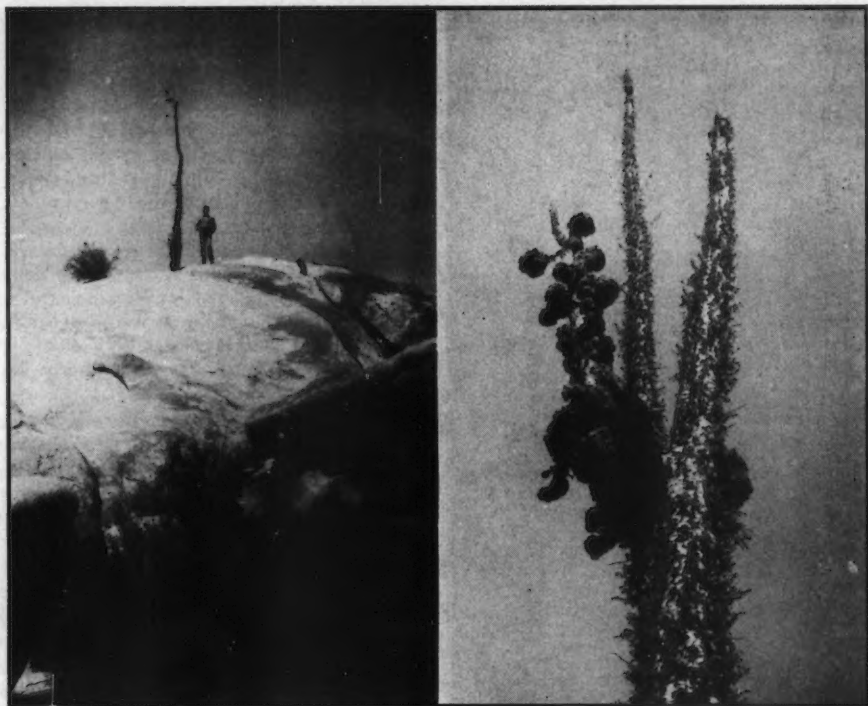


FIG. 119. *Idria columnaris* atop a granite boulder on Cataviña mesa. RIGHT: *I. columnaris* with the lateral branches crested. This is the first fasciation known to have been photographed in this species.

Tuesday, October 8—

Cold morning, wow! A penetrating, wet frost settled down over us last night; the cold came up under us and our camp-cots turned out to be the improper choice for the night. Had to build a bonfire to get thawed out and to dry the bedding. The breakfast hot cakes with bacon made us feel more human, but, of course, we already miss the orange juice and milk.

The day warmed up as we dropped altitude, crossed Laguna Chapalla (not quite *seca*) and meandered down toward Punta Prieta. The rains have brought leaf to the ocotillos, the cirios and the veatchias (*Pachycormus*). Yellow composites cover miles of the sand between the agaves and yuccas and it looks more like spring than fall. *Megathymus* skippers are exceedingly abundant among the agaves,—rather wary and difficult to capture. None were attracted to the flowers, but simply sat on the stumps and spines or flitted in pairs in the sun. We sought lizards almost in vain. I finally got two good specimens, but apparently haven't learned how to use this birdshot.

We met travelers again today, this time a

whole family on burros: man, wife and five kids. They had killed a deer and were carrying it on one burro while the man walked. Deer must be abundant, for we passed one yesterday, and another eight-point buck this afternoon.

As San Andreas rancho we again found gasoline in a drum,—in the chicken yard. When we complained that the price was high, the man explained that to make a profit on the gas was the only way he could afford to use his old '28 Studebaker to go to and from Punta Prieta.

The tracks to Los Ojitos, where I had made excellent seaweed collections in April, looked pretty bad as we turned off the main road. I had wanted to make a return to check on the summer flora, but after a while the washouts discouraged us and we abandoned the idea. We had gone far enough, however, to see the colony of *Cochemia setispina*, and this made the trip worth while. I had spent several days one winter vainly searching for this plant in the mountains west of Cataviña. Here it grows in great, brown, clumping masses, but so far as I've seen, only in a very limited area a couple

of miles inland from the coast and just east of Punta Santa Rosalia.

This is a good camp, well protected and we are cozy beside a big camp fire. I had time to set a trap-line for rodents for the first time tonight, and I tried the lantern on moths. The evening air is pretty cold and the season seems very late for insects at night.

Tuesday, October 10—near Miller's Landing.

It is a wet, sticky night. We are camped beside the ocean 10 miles south of Punta Santa Rosalia and the fog is rolling up in dense clouds, soaking everything with a salty dew. We came only a little way down the coast today, collecting seaweeds all the way. For several miles of the shore I found nothing but sterile sand without a fragment of drift, but the walk by the edge of the beach profited one thing, *Mammillaria Dawsoni*. This was the type locality where I had found the plant in 1933. Though George Lindsay had found it again farther north a few years ago, I had sought it here again several times to no avail. This morning I came across a fine twin-headed plant under low bushes just back of the beach, and again a little later, a single specimen. It is scarce, all right, but it is still here.

Yesterday was our first low tide work, and the seaweeding turned out well. I have at least four new species from this locality now. But for

a stiff wind which kicked up the sand at our proposed camp, we might have stayed on the fine beach for some moonlight swimming. By four P.M. the hills looked more promising. The abalones had been abundant on the rocks; I could have picked a hundred in an hour, but three of these big ones make a pot-full. We apparently didn't kill them quite properly for cooking, for they turned out a bit tough,—like stewed white-sidewall tires, both in aspect and texture.

We met "Pedro," a fisherman who lives with three others in a stone-fenced hut on the shore. They work at abalone hunting for a peso seventy-five a kilo "seca." When they can, they catch shark for the liver oil at thirteen pesos a kilo (about a dollar a pound). Lobsters are trapped in the kelp bed off shore.

Lizards turned up in abundance just inside the beach in the salt flat among small bushes of *Salicornia* and stunted *Fouquieria*. I'm learning to get the small ones by shooting in front with a ball to cause the sand to knock them over.

With the dense fog tonight, we won't know whether we are missing another spectacle like last night. We witnessed a wonderful meteorite shower, and in such clear, dark, desert air it was spectacular. In the space of a minute we could count 10-15 "falling stars" in any quadrant of the sky.

To be continued

A WINTER BLOOMER

By ENID A. STAMNITZ

Crassula argentea is one of the largest growing succulents of the *Crassula* family. Though native of Africa, it is hardy, easy to grow, and adapts itself well to any climate. It is popularly known to house plant enthusiasts as the Jade Plant. While not especially attractive when young, its slow growth makes it a worthy plant for the decoration of dish gardens and terrariums.

The leaves are thick, dark, silvery green. If the plant is kept in full sun all of the time the leaves develop a red margin; this coloring will not appear when the plant is grown either in full or partial shade.

The thick woody stock develops in maturity. When pruned to the outline of a Japanese tree, it forms an outstanding exotic, and decorative specimen worthy of a place in anyone's collection.

C. argentea attains a height of 8 feet at maturity but due to its slow growth, one can enjoy its beauty before it outgrows its welcome.



FIG. 120. *Crassula argentea*, 22 in. tall, grown by the author in Plymouth, Michigan.



FIG. 121. *Crassula argentea* grows six feet tall in California. The ground under a plant of this kind is covered with seedlings. A broken branch may lie on the ground for eight months, survives summer heat, and then flowers in November even though unrooted. For other illustrations see Journal Vol. IV, p. 370. Also see Vol. XV, pg. 119.

The blossoms are delicate pink to white, star-like clusters, blooming through December and January, and adding their own holiday touch along with the traditional Christmas Poinsettia.

It is not a dependable bloomer, however. New plants may start to flower when they reach the age of 4 to 7 years, then again they may never bloom. My personal experience and acquaintance with this plant covers a period of ten years, before it decided to bloom. Its seemingly ungrateful appreciation to my years of devotion to its welfare, almost lost "Madam" *Argentea* her happy home many times, but patience and perseverance has been rewarded—this being the third successive year it has bloomed.

While in active growth, *C. argentea* should be given plenty of water and good drainage. Being a winter bloomer, watering should be reduced during the summer months until early fall. In other words, the method is the same as spring blooming plants, but the period of time is reversed. It responds well to the same treatment as given *Zygocactus truncatus*.

To be successful in growing *C. argentea* requires no special skill. It responds best to crowded quarters and should be seldom transplanted, doing so only when it becomes too top heavy in its container. However, letting it "just grow" is one thing; pruning and training it, to make, and keep it symmetrical, is another, but well worth the effort and vigilance required.

An occasional spraying of clear water over

the foliage will keep it clean and shining. Periodically, a spraying for pests will keep the plant from becoming infested and should be faithfully practiced.

Little mentioned, *C. argentea* is a comely, uninteresting looking plant in its early growth. A plant that occupies a seat in the background—but that develops and advances in beauty at maturity, stepping forward to take its place among the aristocrats of the succulent plant world.

Plymouth, Michigan
November, 1948

BRITISH PLANTS

Announcing the first two parts of "Drawings of British Plants," by Stella Ross-Craig, Royal Botanic Gardens, Kew, and a foreword by Sir Edward Salisbury. The publishers, G. Bell and Sons, Ltd., announce the first two parts of a work of major botanical importance, to which there is nothing comparable in existence at present and which, it is certain, will arouse a great deal of interest in many parts of the world besides the British Isles. The object of the complete work will be to illustrate the species of flowering plants native in the British Isles in a series of 1500 or more drawings. Each part will contain one or more families; it will be complete in itself and bound in book form.

There is probably no one better fitted or better placed to produce these drawings than Miss Ross-Craig, who is the Artist at the Kew Herbarium. Her drawings are in the highest class, both botanically and artistically. They will be of great interest not only to professional botanists and scientific libraries, but also to all amateur botanists, teachers, students, etc.

The plates will be printed on one side only of fine paper, suitable for colouring by hand. Each plate will contain a life-size figure of the plant and also detailed drawings of all parts of the flower and fruit. The first two parts are:

1. "Ranunculaceae (44 plates) 96 pp. 6s. 0d. net
 2. "Berberidaceae, Nymphaeaceae, Papaveraceae, Fumariaceae" (22 plates) 56 pp. 4s. 6d. net
- bound in attractive stiff paper covers and designed for later rebinding into volumes. Order from BERNARD QUARTICH, LTD., 11 Grafton Street, London W1.

SUCCULENT PLANTS OF NEW AND OLD WORLD DESERTS

This 64 page booklet written by E. J. Alexander of the New York Botanical Garden contains 102 excellent pictures of cacti and the other succulents that you should have in your collection. The descriptions are very readable and every amateur should have this book. Order now while available, 55 cents postpaid.

Dr. E. Werdermann, *Brazil and Its Columnar Cacti*—English translation of the German book. Bound in red cloth. An interesting tour of Brazil and the cacti found there \$3.00. Postage: U. S. 7c, foreign 20c.



FIG. 122. *Dudleya pulverulenta* on the hillside near Beverly Hills in Southern California.

AN AMATEUR LOOKS AT DUDLEYAS

By H. G. RUSH

Photos by author

For quite a few years I have thought and have also heard other collectors say that it was too bad the taxonomy of the genus *Dudleya* remains in such an unsatisfactory state of confusion. Several competent persons have at one time or another begun to straighten out this mess, but each one after making a start and in some cases some advancement, have all seemingly, given up the task in discouragement.

While I realize that I am not capable of undertaking this extremely complex taxonomic task, I feel that if even an amateur were to

photograph the various described species at type locality and prepare adequate specimens for herbariums with detail photographs to tell as much of the story as possible, some help might be forthcoming for the collectors of these interesting succulent plants.

According to Donald H. Johansen, (1932), "the earliest known species of what is now called *Dudleya* is perhaps *Cotyledon caespitosa*, described by Haworth in his 'Miscellanea naturalia,' p. 230, 1803. It was at first described as coming from the Cape of Good Hope (Africa)

but this apparent error was soon corrected to Monterey, California.

"The second species to come to light was described in 1811 by the younger Jacquin as *Sedum cotyledon*; this is the now familiar coastal *Dudleya cotyledon*, a plant which is more strikingly beautiful in nature than in cultivation.

"The third and fourth species were described together in 1840; these were Nuttall's *Echeveria pulverulenta* and *Echeveria lanceolata*, both now familiar to collectors of succulent plants as *Dudleyas*, under the same specific names."

The genus *Dudleya* was erected by Britton and Rose in 1903. They chose for the type species, Nuttall's *Echeveria lanceolata*. The following represents the original description as given by Britton and Rose:

"Caulescent or acaulescent perennials with flat, linear to ovate basal leaves, and yellow, orange, red or rarely white flowers mostly in panicles. Leaves of the flowering branches usually much shorter and relatively broader than the basal ones, sessile or clasping. Calyx conspicuous, 5-lobed, the lobes erect, linear-lanceolate to ovate, obtuse to acuminate. Corolla nearly cylindric or somewhat angled, the segments united below the middle, erect or their tips somewhat spreading, obtuse to acuminate. Stamens twice as many as the calyx-lobes, distinct. Carpels erect, many seeded."

A few distinguishing characters of the genus *Dudleya* which have been added to the concept of the genus since Britton & Rose. Berger (1930) states that the leaves of the genus *Dudleya* have, usually, large bases and each leaf is attached by the whole area of its broad base. The leaf bases remain in intimate association with the caudex to form the outer layer of the bark. Walther (1936) points out that the aestivation of the petals of the *Dudleya* corolla is convolute. Moran (1942) brings to light the fact that the veins of the leaves in *Dudleya* are more or less parallel towards the base or somewhat diverging and depart from the leaf separately.

The ability to reproduce itself from the base of the leaf seems to be entirely lacking. *Dudleya* is quite geographically limited, occurring principally along the Pacific coast of California and Baja California and extending eastward into Nevada, Arizona, and Sonora, Mexico.

Specimens of the plants about which I will write, have been or will be prepared and deposited in the herbarium of the Allan Hancock Foundation, University of Southern California, Los Angeles, Calif.

The following is an excerpt from Britton & Rose (1903):



FIG. 123. *Dudleya pulverulenta* on bluff near ocean south of Oxnard.

"*Dudleya pulverulenta* (Nutt) Br. & R. Bull. N. Y. Bot. Gard. 3:13, 1903

Echeveria pulverulenta Nutt. T. & G. Fl. N. Am. 1:560, 1840

Echeveria argentea Lemaire. Lemaire, Ill. Hort. 10:78, 1863

Rootstock short, thick; plant mealy-pulverulent all over. Flowering stems stout, 8 dm. high or less; basal leaves numerous, spreading, flaccid, 1.5 dm. long or less, 5-9 cm. wide, broadly spatulate to obovate-spatulate, acute to acuminate; leaves of the flowering stems numerous, broadly ovate, deeply cordate-clasping, acute or the flower ones ovate and acuminate; inflorescence of two or several ascending racemes, 1-3 dm. long; pedicels very slender, 8-18 mm. long, nearly horizontal, the flowers erect or ascending; flowers about 1.5 cm. long; calyx-segments lanceolate to ovate-lanceolate, about 5 mm. long, acute; corolla red, its lobes acute, united to about the middle; carpels narrow, distinct or nearly so, erect. Type locality—San Diego, California. Distribution—Southern California."

Dudleya pulverulenta is one of the more showy of the California native succulent plants

and while its distribution has been said to be limited to Southern California, it, or its variety *Dudleya pulverulenta* ssp. *arizonica* (Rose) Moran have been collected or reported from as far north in California as Salinas, as far south into Baja California as Guadalupe, as far north in Arizona as northern Mojave County, quite close to the Utah border. It has also been collected in Sonora, north of Puerto Libertad, by F. Long; these collections being the first made of any species of *Dudleya* from the mainland of Mexico.

D. pulverulenta is distinct from all other *Dudleya* species so far as is known, especially those of the United States. The petals are united to slightly beyond the middle while in the other species from the United States, the petals are united for not more than one-third of their length. Several species from Baja California show petals united nearly to the middle but none of these could be mistaken for *Dudleya pulverulenta*.

D. pulverulenta, as the name implies, is very mealy-pulverulent or glaucous. The entire plant, including the flower stalk and the flowers is covered with this fine white powder. The white powder is so heavy at times that just to touch the plant or flower stems causes a small cloud of the powder to fall off. While the size of the rosette varies greatly as does the number of basal leaves which make up the rosettes, still the general appearances of the plants are unmistakably the same. Also, the general appearance of the inflorescence and flowers remain the same throughout the full range of the plant, as does the color of the flowers.

Sometimes this species attains enormous size. A plant collected in upper San Juan Canyon about fourteen miles east of San Juan Capistrano, measured two and one-half feet across the head. Another plant found growing in full sunlight, on a grass covered sand hill near Dana Point, was over two feet across. But the largest plants I have found were in Mandeville Canyon near Santa Monica, where there were any number of plants to be seen upon the sides of the canyon which I feel sure would measure very close to three feet across.* Plants which have been sent to me as well as those which I have collected from the northern portion of the range do not seem to attain as great a size as those in the southern portion, regardless of the fact that the northern plants receive much more rainfall than those in the south.

Like so many of the other species of *Dudleya*, this species seems best adapted to growth high up on a bluff or steep hill and many times will

be found clinging to a perpendicular, rocky cut where it seems that nothing in the world could attach itself and manage to exist. This condition is well illustrated in Santa Ana Canyon, between Santa Ana and Corona, where the Highway Department, when building the road through the canyon, made many very deep, sharp cuts into the hills. Near the top of several of these cuts, entirely out of the reach of the human plant collector, peacefully repose many beautiful plants seemingly perfectly satisfied that they will never be bothered in their chosen location.

Also in Mandeville Canyon, mentioned before, the plants inhabit such steep hills that it is difficult even to get close enough to them for a picture.

Like all of the other species of *Dudleya* which I have brought in, *Dudleya pulverulenta* does not seem to be very happy in cultivation, as the man-made conditions to which they are subjected, fail to give them what they seem to need. The plants appear to thrive much better under what seems to us to be adverse conditions, such as lack of water, poor soil, and practically no food. If left alone in the wilds, the plants last for many years, flowering and growing regularly, but plants brought into cultivation are usually very short-lived, seldom lasting more than a year or two at the most.

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PAN AMERICAN HIGHWAY

Of major importance to the student of cacti is the Pan American Highway that is now under construction. Eighty-three percent of this 12,000 mile project is largely paved or graveled and it is only a matter of time when you can take your own car from the Rio Grande down through Mexico, the Americas, Colombia, Ecuador, Peru, and Argentina. Add to this the connecting network to include Bolivia, Brazil, and Venezuela, and you can see the vast cactus countries that will be opened for study. We predict that during this next twenty years more than 200 new cacti will be added to those we already know. These new plants will form connecting links between many of the genera and a re-classification will be needed.

Dr. Yale Dawson of the Allan Hancock

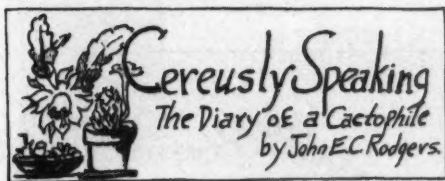
Foundation recently made a collecting trip in southern Oaxaca and the Isthmus of Tehuantepec and brought out new material* from this unexplored area because it has only recently been open to vehicle traffic.

We recommend that you send 25c in coin to the Travel Division, Pan American Union, Washington 6, D.C., for their booklet, "The Pan American Highway System." Among the interesting facts contained in this 66 page book is a map of the proposed highway system. The following is from page 56 and a careful study of the seasons will help in growing the cacti from those countries mentioned:

* "New Cacti of Southern Mexico" Dawson and Craig. Allan Hancock Foundation, University Park, Los Angeles, Calif. Price \$2.25.

Dry and Rainy Seasons along the Highway Route

<i>Country</i>	<i>Dry Season</i>	<i>Rainy Season</i>
MEXICO.....	October — May.....	June — September
GUATEMALA.....	November — April.....	May — October
EL SALVADOR.....	November — April.....	May — October
HONDURAS.....	November — April.....	May — October
NICARAGUA.....	November — April.....	May — October
COSTA RICA.....	November — April.....	May — October
PANAMA.....	December — April.....	May — November
VENEZUELA.....	December — April.....	May — November
COLOMBIA.....	December — February and June — September	March — May and October — November
ECUADOR.....	June — September.....	October — May
PERU		
Coast.....	January — December	
Mountains.....	April — October.....	November — March
CHILE		
North.....	January — December	
Central.....	August — April.....	May — July
BOLIVIA.....	April — November.....	December — March
ARGENTINA.....	April — October.....	November — March
PARAGUAY.....	June — September.....	October — May
URUGUAY.....	Rain evenly distributed throughout the year	
BRAZIL		
South.....	Rain evenly distributed throughout the year	
São Paulo and Rio de Janeiro States.....	April — September.....	October — March



The *Pleiospilos* (formerly called *Punctillaria*) came to the attention of the collector in 1870 when *P. Bolusii* was discovered. Most books and articles seem to agree that the *Pleiospilos* are the most easily cultivated Mesembryanthema of the Fig Marigold Family (Aizoaceae). *P. simulans* came somewhat later and both were greatly admired. H. Jacobsen, author of "Cultivation of Succulent Plants" wrote, "When after 1920 *P. Bolusii* and *P. simulans* were introduced in great quantities, these plants fetched high prices as seed bearers, and seeds were distributed without thought of hybridization. The results were in most cases, hybrids of these species . . . so that in 1925 there was hardly a true *P. Bolusii* or *P. simulans* in existence in cultivation." The same author writes that *Pleiospilos* seed should be covered at least the thickness of the seed if not heavier. So it is with some trepidation that I write about this genus although, I confess, most of my plants were supposed to have been from seed imported directly from South Africa. If I'm not mistaken the type locality is also important, not just South Africa. So be kind—I'm probably a collector of "Hybrid Pleisipilos."

So far, I've been able to beg, buy, or acquire by barter: *P. Bolusii*, *magnipunctatus*, *Nelii*, *optatus*, *simulans*, and *Dekenahi*. Doesn't seem a large collection when there are 30 species known but I've been around and local collectors have only *P. Bolusii* and *simulans*. Once in a while one has *P. Nelii* and usually a seedling at that.

The only local name I've heard them called is Living Rocks. This is also the common name for *Ariocarpus fissuratus*—a cactus of Texas. The name *Pleiospilos* means "full of spots or dots" referring to the conspicuously dotted leaf.

Because they are South African and our fall is the South African spring, they bloom from mid-September to mid-November. I have had them bloom as late as Christmas, but this is rare.

The fact that they are mimicry plants has not protected them for they are reported to be in danger of extermination in South Africa by grazing goats and other live stock. *P. magnipunctatus* is relished by tortoises as shown by the Boer name "scheid padkost" meaning tortoise food. Birds, such as starlings and sparrows (both originally brought to the U. S. A. from Europe) peck at *Pleiospilos* as well as *Lithops*. Lead arsenate kills off caterpillars and keeps the birds away. Nematodes, so far as I can find, seem to shun *Pleiospilos*; they are not fatal to them however; when authors differ as to this immunity, soil sterilization should be a part of the routine of a succulent collector to control most root infections, bugs, etc. Rot is the most common cause of loss.

Most of the directions for cultivation are for those who live in climates similar to that of South Africa. Here in Ohio I find that pots which are more than two inches in diameter, and called bulb pots, are best. If deeper pots are used, plenty of drainage should be used. Good drainage is one of the prerequisites for *Pleiospilos* as well as for other Mesemb. They will grow in most any kind of soil if it is well drained.

They like plenty of light, good ventilation and cool temperatures. I keep mine on the "dry side." I have used these plants in my west window garden where they have done well, held their shape, and seem healthy—no doubt because my study is small and has no direct heating connection from the hot water furnace.

P. Bolusii is the largest of the genus—up to six inches, although most of those I have seen are under this size. The difference between *P. Bolusii* and *P. simulans* is the "wooden-shoe-toe" effect of the former. The latter has a boat keel effect. The two are often confused by the local dealers. Both are gray-green and wrinkled. They resemble irregular stone pieces that are scattered on the African hillsides.

The flowers open for several days. They increase in diameter as much as an inch, from the time they open until they close—which is as long as a week for me.

P. magnipunctatus has a long, keeled leaf which is covered with large dark green dots (magna-great, punctata-points) which looks as if they were made to admit light to the soft green tissue below the gray green of the outer "hide." *P. optatus* resembles *P. magnipunctatus* but it is smaller with narrower leaves. It forms clusters the same as the latter. The flowers are yellow for both species.

P. Dekenahi has the narrowest triangular leaves of those I own; my plant filled a 4½ inch pot which is a large pot for this genus. Its flowers are smaller but the same shade of yellow as the others, with the exception of *P. Nelii*. A pot of dense heads with each in bloom is an artist's dream.

The plant of the month is *P. Nelii* named after Prof. G. C. Nel, director of the University of Stellenbosch. Dr. N. E. Brown named it *P. tricolor* which is truly descriptive of the only three-colored bloom of a *Pleiospilos*. Although egg-shaped, the two divisions can hardly be seen; from the opening of which the bud emerges. Dull yellow anthers are surrounded by a whitish ring at the base of the petals encircled by coppery apricot; this gives the flower the unique title of the most beautiful of the genus. In the "frosts" of Northern California of December, 1932, *P. Nelii* withstood 18° F. in the garden of Victor Reiter, Jr., entirely unprotected. This should make it a candidate for my honor plant of the month, and so I chose it.

A bench of *Pleiospilos* would be a rare item to report. I've only the six species and when they are in bloom in the fall, they stop traffic. What a rare treat it would be if I could get the other 24 species!

Let's hear from you who have some of the others. I like them. Next month I shall discuss winter blooming cacti of my collection. Plant of the month will be the Christmas Cactus.

JOHN E. C. RODGERS
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EDITOR WANTED

For several years we have had a type written translation of Dr. Carlos Hosseus' book "Notas Sobre Cactaceas Argentinas." The manuscript needs to be checked against the Spanish for the proper botanical terms, plant names, and English. The ms. will not need retyping. If one knows Spanish and cactus terminology he would render journal readers a valued service in making available this book on the cacti of Argentina. (Ed. Baxter—please note.)



FIG. 124. *Epiphyllum anguliger* under cultivation in Mexico. This fine specimen grows in the dark corner of a porch in Tlaxiaco, Oax. The year-round, deep, glossy green of the branches compensates the owner for possible lack of floriferousness due to the heavy shade. (See JOURNAL, Vol. XVI, pg. 111-112)

***Epiphyllum anguliger* as grown in Mexico**

Excerpts from a collectors notes

By T. MACDOUGALL

Winter wanderings had carried me to Tlaxiaco in Oaxaca, and, here in this "Pearl of the Misteca" I spent the New Year days with a circle of friends.

These old colonial towns contain many botanical rarities hidden behind closed doors and high walls—in southern Mexico a collector's work is never done! Thus, having occasion to make a purchase in the small store at a native house, I had, from habit, taken a prying peek into the patio. As usual this inquisitiveness plus the explanation "soy botanico," met with the owner's ready invitation to enter—common interest is a latch-key everywhere, nowhere more

so, I am sure, than with the hospitable people of Mexico. Inside the patio I found many fine native species of various families, including botanically unnamed *Echeverias*—missed by the early collectors. In addition, growing in a dark corner, was the finest specimen of *Epiphyllum anguliger* it has been my fortune to see.

To get a passable picture with my hand-camera, a light-meter reading indicated that the largest opening with a shutter speed of 1/10 sec. would be necessary. Good fortune continued with the camera-man and a picture was brought back for the pleasure and edification of fellow epiphyllites.



SPINE CHATS

LADISLAV CUTAK



Coryphantha Hesteri is a small globose cactus known only from the Big Bend country of Texas. It was first discovered by J. Pinckney Hester in 1930 near Mt. Ord in the Del Norte Mountains, about 10 miles southeast of Alpine. This pincushion cactus commemorates the discoverer and is still little known in collections. During August of 1936 our Garden pathologist brought me several small plants which turned out to be this fascinating species. He had collected them in a region 15 to 20 miles south of Marathon—one of the three northern approaches to the rugged Big Bend country. In 1938 I had an opportunity to visit the Lone Star State and made my headquarters on the Roberts' ranch, collecting and studying plants on the Big Bend. I failed to find *Coryphantha Hesteri* on the first trip. However, the following year I returned and hunted for it in another location known as the Hood Spring Quadrangle. Wandering from camp, intent on photographing a picturesque escarpment, I suddenly espied at my feet this cactus rarity. The plants were mostly wedged between rock and some showed signs of having been nibbled on by grazing sheep.

Coryphantha Hesteri possesses large and fleshy roots and grows in little clumps of several heads. The new growth is light green but turns dark or greyish green in age. Individual heads are globose, 4.5 cm. high, covered with tubercles that are slightly flattened on top. The groove on the tubercles, characteristic of the genus, is sometimes deep or again scarcely noticeable, extending from the areole to near the axil, naked except in the very young tubercles when a tuft of white wool is produced. Areoles are circular, small, slightly white-felted in youth, soon becoming naked. The spines are all radial, described as glassy white, although many are brown-tipped. Usually 14 to 16 in number, the spines are slender yet stiff and spread out like the spokes of a wheel, from 5 to 10 mm. long, with the uppermost longest. Occasionally a small fascicle of slightly weaker spines of about equal length and color is formed near the top of the groove. Flowers appear in August, out of the axils of the uppermost tubercles and are at least an inch (2.5 cm.) long. The inner perianth-segments are purplish with lighter margins. The outer perianth-segments are greenish to purplish, ciliate along the margins. Filaments are white with orange anthers. The style and its four stigma lobes are likewise white. For illustrations of this plant see Vol. III, pg. 84 and Vol. IV, pg. 273. Also Nat. Cact. and Succ. Jour. Vol. III, No. 3, 1948.

Frank E. Egler has an interesting paper on "Arid Southeast Oahu Vegetation, Hawaii" in the October 1947, Ecological Monograph (17:383-435). This paper is specifically a report on the composition, structure and other features of the vegetation of that section and was of interest to me because it told of a number of xerophytic and succulent herbs or shrubs that have become naturalized. Oahu is the third in size of the Hawaiian Islands and the center of the political, cultural, and commercial life of the Territory. Southeast Oahu, which is treated in this article, is a narrow strip of about 12½ miles from east to west and slightly more than 3 miles from north to south. From a vegetational point of view, there are only 10 predominant species in this arid region, one

of them the panini, *Opuntia megacantha*, but these 10 species have segregated themselves into seven communities of outstanding regional importance in the non-maritime vegetation of the xerotropical region. One of these communities is the *Acacia-Opuntia* scrub predominant on all slopes in the middle zone. *Acacia Farnesiana* and *Opuntia megacantha* are the two predominant species in this community; all other species are of secondary importance. The spiny *Opuntia* is scattered irregularly in the *Acacia* thicket and grows to a height of 6 to 9 feet. On certain rock slopes it forms over three-quarters of the vegetation. In another community the *Leucaena* scrub, the climbing cylindrical *Selenicereus grandiflorus* develops very luxuriantly and knits the *Leucaena* thicket into an impenetrable tangle wherever it is present. In this same community, *Bryophyllum pinnatum*, in places, forms a continuous ground cover. *Fourcraea gigantea* is established in various places near Honolulu. The colony spreads and invades various shrub types, but it does not appear to become widely dispersed over the slopes.

Caralluma montana is a new species described by R. A. Dyer and E. A. Bruce in "The Flowering Plants of Africa" (vol. 26, plate 1034, October, 1947). The new plant was originally collected by Major A. G. McLoughlin in the mountains of Abyssinia some 60 miles south of Addis Ababa at an elevation of 6000 ft. The new entity differs from the other species of the genus found north of the equator in its 6-angled stems. This type of stem is found in the *Mammillaris* group which is only represented in South Africa. The nearest tropical African ally to it is *Carallum Bald-ratii* which occurs in Eritrea, the Sudan and Kenya. The new species has glabrous, yellow flowers which are aggregated at or near the apex of the stems.

Not so very long ago a new booklet on cacti and other succulents was published in England by H. M. Roan and his collaborators. Mr. Roan is secretary of the National Cactus and Succulent Society, which is undoubtedly the biggest cactus club in Europe today. He is also one of the founders of the club. The Primary is his first literary effort and merits commendation. It is a booklet of 55 pages of text with many excellent illustrations. Perhaps our readers would like to get a slant on Mr. Roan and I'm willing to supply the information. The English gentleman is a textile manufacturer by profession and spent 10 years of his youth on the Continent in pursuit of his work. During these ten years he learned to speak German and Dutch very fluently and to read French and Spanish equally as well which enables him to translate important works on Succulents for his own satisfaction. His collection of some 2000 plants is one of the six most extensive private ones in Britain. Roan's greenhouse is 12 by 40 feet and heated by thermostatically-controlled oil immersed heating units, the winter temperature being set to average 45 degrees F. The greenhouse is lighted by fluorescent lights. A 4 foot, 6 inch wide bed occupies the center of the greenhouse and there are side stagings. The potted plants are plunged to three-quarters of their depth in a mixture of sharp river sand and ash. Many choice cacti and most of his Mesemb have flowered and set seed. He certainly has a "green thumb."

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